

PATENT APPLICATION
DOCKET NO. 200207627-1

OBJECT CATCH BIN

INVENTORS
Marius Buibas,
Ted T. Lee, and
Erik Zhang

OBJECT CATCH BIN

FIELD OF THE INVENTION

[0001] This invention relates in general to an object catch bin and, more particularly, to an object catch bin that pivots.

BACKGROUND OF THE INVENTION

[0002] Object catch bins are used to stack objects. Often, catch bins are used to catch compact discs after the discs have been printed. In many standard object catch bins, newly printed discs are dropped directly on top of one another. This direct impact may scratch or nick newly printed discs or objects already in the bin. Additionally, the conventional direct impact object catch bin usually leaves the stacked objects or discs in a non-uniform stack.

[0003] Other object catch bins attempt to address the shortcomings of the direct impact catch bin through a variety of costly modifications. The upstacker or automated stacker utilizes a robot, which carefully places printed objects or discs on a designated stack after processing. The main drawbacks to this variety of catch bin are that it is very costly and large.

[0004] Another type of catch bin rests entirely on springs. Although this type of catch bin may effectively cushion the impact of objects dropping directly on one another, this type of catch bin utilizes a significant amount of space and is expensive to manufacture.

SUMMARY OF THE INVENTION

[0005] According to principles of the present invention, an object catch bin has a tray disposed to catch objects. The tray is pivotal about an edge. Bias means resist pivoting of the tray.

DESCRIPTION OF THE DRAWINGS

[0006] Figures 1-3 are illustrations of one embodiment of the object catch bin of the present invention in operation.

[0007] Figure 4 illustrates another embodiment of the object catch bin of the present invention.

[0008] Figure 5 is a flow chart illustrating one embodiment of the method for stacking objects of the present invention.

DETAILED DESCRIPTION OF THE INVENTION

[0009] Illustrated in Figures 1 through 3 is one embodiment of an object catch bin 2. Object catch bin 2 includes a tray 4. Tray 4 is disposed to catch objects 6. Tray 4 is made of any material and has any shape suitable for holding object 6. Object 6 is any object that is stackable. Examples of object 6 include compact discs, disc cases, cassettes, and boxes.

[0010] Back stop 8 is any structure capable of catching object 6 in tray 4. In one embodiment, back stop 8 is integral with tray 4. In another embodiment, back stop 8 is not integral with tray 4. Back stop 8 is attached to tray 4 in one embodiment and not attached to tray 4 in another embodiment. Optionally, tray 4 rests on a base member 14. Base member 14 can have any shape or configuration suitable for supporting or holding tray 4. In one embodiment, base member 14 is attached to back stop 8. In another embodiment, base member 14 is detached from back stop 8.

[0011] Tray 4 has an edge 10. In one embodiment of tray 4, edge 10 is located at the vertex of tray 4 and back stop 8. Tray 4 is pivotal about edge 10 of tray 4.

[0012] Bias means 12 is any structure that causes tray 4 to resist pivoting about edge 10 of tray 4. Examples of bias means 12 are springs, hydraulics, and magnetic bias means. In one embodiment, bias means 12 is attached only to tray 4. In another embodiment, bias means 12 is disposed between tray 4 and base member 14.

[0013] Conveyor means 16 is any device for projecting objects 6 into tray 4. Examples of conveyor means 16 include conveyor belts, rollers, and slides.

[0014] Pivoting of tray 4 about edge 10 of tray 4 serves to cushion the impact of object 6 on tray 4 after object 6 is projected into tray 4 by conveyor means 16. Tray 4 optionally pivots using a hinge. Pivoting of tray 4 also optionally results in rotation of tray 4 to a desired location depending on the weight and contents of tray 4. For example, as illustrated in figures 1 through 3, as the number or

weight of objects 6 on tray 4 increase, tray 4 pivots from an angled position (figure 1) to a mostly horizontal position (figure 3) when full.

[0015] Figure 4 illustrates pivoting in another embodiment of the configuration of tray 4 and back stop 8. In this embodiment, tray 4 and back stop 8 are attached to each other at edge 10. Both tray 4 and back stop 8 pivot about edge 10 of tray 4. As the number or weight of objects 6 on tray 4 increases, tray 4 pivots from an angled position to a mostly horizontal position and back stop 8 pivots from an angled position to a mostly vertical position. The mostly vertical position of back stop 8 facilitates straight stacking of objects 6.

[0016] Figure 5 is a flow chart representing steps of one embodiment of the present invention. Although the steps represented in Figure 5 are presented in a specific order, the present invention encompasses variations in the order of steps. Furthermore, additional steps may be executed between the steps illustrated in Figure 5 without departing from the scope of the present invention.

[0017] Object 6 is conveyed 18 into tray 4. Tray 4 catches 20 object 6. Catching 20 includes receiving the object 6 after it is conveyed 18 into the tray 4. Tray 4 pivots 22 about the edge 10 of tray 4. Bias means 12 bias 24 tray 4 to resist pivoting about edge 10 of tray 4. Optionally, bias means 12 may be selected to resist pivoting regardless of the weight and contents of tray 4. Alternatively, bias means 12 may be selected to modify the degree of resistance based upon the weight and contents of tray 4. Modification of the degree of resistance of the bias means 12 allows tray 4 to pivot 22 to a desired location. For example, bias means 12 allows tray 4 to pivot 22 from angled when empty to horizontal when full.

[0018] The foregoing description is only illustrative of the invention. Various alternatives and modifications can be devised by those skilled in the art without departing from the invention. Accordingly, the present invention embraces all such alternatives, modifications, and variances that fall within the scope of the appended claims.